

## PART ONE: THE AGE OF ENTERPRISE, 1866-1900

The post-Civil War period was a time of vast urban growth along the upper Mississippi River. Between 1870 and 1900 the twin cities of Minneapolis and St. Paul expanded from villages with a combined population of 33,096 to the eighth largest metropolitan center in the United States, containing 365,783 people. The greatest growth occurred between 1880 and 1910 when Minneapolis grew from 46,887 to 301,408 and St. Paul from 41,473 to 214,744.<sup>1</sup> St. Paul was a political and commercial city with transportation terminals and government offices. Minneapolis became an important manufacturing center. The stationary steam engine, the railroad, wheat, and lumbering were all key elements in this rapid urbanization process, along with the entrepreneurial spirit of people like Franklin Steele, Cadwallader and William Washburn, Charles A. Pillsbury, William W. Eastman, John L. Merriman, and James J. Hill.

The Corps of Engineers established an office in St. Paul in 1866. This federal agency energetically supported the transportation and manufacturing interests of this lumbering and milling center. In fact, it was national policy to provide technological assistance for urban growth. The "Northwest" was just one of many frontiers to be tamed by mechanically cultivating the soil, building transportation and communications systems, and exploiting natural resources.

Logging off the finest stand of white pine in the world took only 40 years. Billions of board feet were rafted out of the Rum, the St. Croix, the Black, the Chippewa, the Wisconsin, and many other tributaries into the Mississippi. Logging not only jammed these rivers, making packet and excursion transportation difficult, but the refuse dumped into the streams affected both water quality and water flow. The logging industry's greatest need was for ample water. Here the Corps of Engineers provided their expertise. A series of reservoirs created by the Corps in the Mississippi headwaters aided all three phases of the lumber industry. Release of water allowed logs to float out of the north woods, provided power for mills at Minneapolis, and assisted in floating cut lumber to market downriver.<sup>2</sup> The following four chapters describe the role of the Corps in fostering the rapid exploitation of the great pine forests of Minnesota and Wisconsin.

## HEADWATERS: SCALPING THE INDIANS

Charles Ellet in 1852 first suggested that the federal government create reservoirs at the headwaters of the Mississippi. St. Paul District Engineer Gouverneur K. Warren recommended in 1868 that the headwaters be examined to determine the possibility of retaining floodwaters there to aid Mississippi navigation during low-river stages. He was interested primarily in preserving the Falls of St. Anthony, which had been damaged by recent floods.<sup>1</sup>

In 1874 Congress appropriated funds for such a survey. Major Francis U. Farquhar was then in charge of all work in the region, and he supervised the first plans. Farquhar located seven dam sites that he thought capable of retaining about 95 billion cubic feet of water. Much of this property had been given in 1855 to the Chippewa (Anishinabe) Indians. After a four-year delay, Congress appropriated funds for a more detailed survey, to be directed by the new St. Paul Engineer, Major Charles Allen. After much lobbying by William Washburn, a Minneapolis miller, Congress included in the 1880 Rivers and Harbors Act \$75,000 for the construction of an experimental dam at Lake Winnibigoshish. The authorization stipulated that all injuries caused by the overflow would be determined by agreement or in accordance with Minnesota laws and would not exceed \$5,000 in the aggregate.<sup>2</sup>

The land that would be overflowed by the construction and operation of the Lake Winnibigoshish dam, as well as by another dam at Leech Lake, belonged to the Chippewa Indians. In the 1850s the Chippewa ceded to the United States an immense tract of land in Minnesota, and they received several relatively small reservations in return. The approximately 1,300 Chippewa who lived on Leech Lake and Lake Winnibigoshish were known as Pillagers. They depended for their living on the wild rice that grew in abundance in swamps and around the lakes. The rice crops required stable water levels to grow and thrive. The Indians on these reservations also fished, made maple sugar, gathered berries, and hunted the dwindling game. In addition, they gathered hay near Leech Lake for their ponies and for a few cattle.<sup>3</sup>

The fact was clear that operating the dams at Leech and Winnibigoshish lakes would damage, and maybe destroy, the Indians' rice fields. Although



Major Francis U. Farquhar. St. Paul Engineer, 1873-1878.

*Rock Island District*

Secretary of War Alexander Ramsey pointed out that the government had no authority to overflow any part of the reservation or to take timber from the reservations to construct the dams, work began on the Lake Winnibigoshish dam in 1881. The Rivers and Harbors Act of 1881 appropriated \$150,000 for additional reservoirs at the headwaters of the Mississippi and its tributaries. The Secretary of the Interior was authorized to ascertain injuries caused to "friendly Indians" by constructing the dams or by removing trees or other materials from the reservations, and to determine the amount that the government should pay the Indians for these damages. The act also provided that "such damages shall not exceed ten per centum of the sums hereby and heretofore appropriated for the construction of said dams." The amount, then, was not to exceed \$22,500.<sup>4</sup>



Major Charles J. Allen. St. Paul Engineer, 1878-1889.

*St. Paul District*

The Department of the Interior and the Commissioner of Indian Affairs appointed three Minnesota citizens to ascertain what injuries would be done to the Indians by the construction and operation of the dams and reservoirs at the headwaters, and to determine what should be paid to them. The commission assessed damages of \$8,393 at Lake Winnibigoshish and \$7,073 at Leech Lake. The Department of the Interior approved these figures, and funds were appropriated. However, the appropriation was refused by the Chippewa as being far too inadequate.<sup>5</sup> The "friendly" Indians prepared to defend their rights.

Bishop Henry B. Whipple, a long-time defender of Indian rights, notified the Office of Indian Affairs of the mounting fear that some of the "foolish young men" at Leech Lake would molest the workers at the Lake Winnibigoshish dam. He explained that the Indians depended on their rice crops for food to survive the rugged northern winters, and diplomatically stated that "highly as I do esteem some of the gentlemen who were connected with the commission last fall, I believe they failed to place before you the Indian side of the question, and the Indians did not accept their offer." One Chippewa, White Cloud, told Straight Tongue, the Indian name for Bishop Whipple, of the Indians' fears of future damage to

“that in which they derive support,” and reminded him that the dams had been built without the consent of the Indians.<sup>6</sup>

Major Charles Allen did not agree that work on the dams should be stopped until the controversy was settled. In 1880, before work had begun, Assistant Engineer Charles Wanzer reported that a trader at Leech Lake had assured him that the proposed dam would result in little damage to the Indians.<sup>7</sup> Allen reported that he was against any delay in construction caused by the dissatisfaction of the Indians: the supplies at the sites were perishable and a delay would mean a loss to the government. He pointed out the cost savings in allowing the Corps to continue the project.

Indian Affairs Commissioner Hiram Price suggested that the Pillagers be compensated as soon as possible to avoid the chance of uprising. Some settlers in northern Minnesota were already becoming alarmed. Price agreed that the Indians were not exaggerating their complaints, as the rice crops on the lands to be overflowed were the major means of the Indians’ support. In addition, the shoals where the Indians fished might be inundated. Price proposed appointing a new commission to re-examine the amount of damages the construction and operation of government dams and reservoirs would cause.<sup>8</sup>

Although a new commission was appointed in December 1882 to re-examine the extent of overflow damages, the illness and replacement of one of the com-



Bishop Henry B. Whipple.

*Minnesota Historical Society*

missioners caused a long delay. Price, Whipple, and the Pillager Indians asked that work on the dams be suspended until the new commission's report was submitted and approved by all. Major Allen refused. He emphasized that work on the Leech Lake dam had been started only after assurances from the proper government departments that the way was clear for the engineers. Waiting for the new commission to assess damages might cause the Corps months of delay. At any rate, Allen noted, water would not be raised in the reservoir until the sluice gates were built and operating.



Hi-gan-i-bi-ness, "Flatmouth," chief of the Pillager tribe.

*Minnesota Historical Society.*

Meantime, smallpox broke out among the Leech Lake Indians. Hi-gan-i-bi-ness, chief of the Pillager tribe, attributed the disease to the construction crew working on the dam. Major Allen thought this claim "laughable" and reported that his engineers had saved one-half of the tribe by providing help during the smallpox outbreak.<sup>9</sup>

After obtaining Allen's report, which was approved by Chief of Engineers H.G. Wright, Secretary of War Robert Lincoln decided to continue work at the Leech Lake dam. Meanwhile, matters worsened on the Leech and Winnibigoshish

reservations. It appeared that the reservoirs would overflow some of the Indians' paths and roads in addition to their croplands, forcing some residents to relocate. Bishop Whipple notified Commissioner Price in August 1883, "I am heartsick over this whole matter. It is one of the many instances where we have clearly violated principles of justice." Most of the soil on the Leech Lake Reservation was too poor for the Indians to turn to farming, a fact that agent C.P. Luse of the White Earth Agency (which included Leech Lake) emphasized in a report to Commissioner Price.<sup>10</sup>

In November 1883, the new commission held a council at the Leech Lake Reservation, which was attended by Assistant Engineer Rufus Davenport and several chiefs and warriors of the Leech Lake and Winnibigoshish reservations. The Pillagers requested an appropriation of \$250,000 to be paid twice each year to compensate for the losses they would suffer as a result of the government dams. Chief Hi-gan-i-bi-ness, called Flatmouth in English, stated that "it is very singular that the Great Father is taking such steps as he is doing; he is making a laughing-stock of himself by taking away what the Indians are living on." Hi-gan-i-bi-ness also claimed that the government was unfair in damming the river in spite of the Indians' opposition. Finally, "although we are friendly to the white people, it seems to me we are being placed down very low by the white people."<sup>11</sup>

Mau-way-wen-ne, or Surgeon Man, reported the deaths of many of his people at Lake Winnibigoshish during the previous winter because of the new dam there. "If this work is carried on and we are not given what we wish, we will all scatter and will die." Muck-a-day-we-ki-ney-ay, an Indian priest, perhaps best expressed the feelings of the Indians when he remarked that "the Great Father has acted like a dog in this matter, snatching at something that does not belong to him, and such actions are not very commendable." He emphasized that there should have been a mutual understanding before work on the dams started; the fact was "very evident that the white man, although he appears to be great he is foolish."<sup>12</sup>

Captain Blakely, one of the three commissioners, told the group that the government seldom paid white men their full claims for damages. Stressing that the commission wanted to help the Indians, Blakely told them that the "Great Father" would never agree to pay \$500,000 each year. The commission instead tried to ascertain how much hay, rice, fish, and other damages could be assessed from the construction of the government dams and reservoirs. Blakely told the tribal leaders they would have to be satisfied with a lump-sum payment.<sup>13</sup>

When Blakely failed to obtain a lump-sum figure from the Indians, the commission sought information from a government interpreter, an overseer, and other local residents. The commission learned that the approximately 500 families living around Leech, Winnibigoshish, and nearby Cass lakes each gathered about 300 pounds of rice per year, and that about 150 tons of hay were cut around Leech Lake. The commission was assured that the rice, hay, and fishing areas would be destroyed or damaged, that sugar-making would be reduced, and that many tamarack and cedar trees on the flooded lands would be killed.<sup>14</sup>

The commission submitted their report at the end of November 1883. They related that the Indians at Leech Lake and Lake Winnibigoshish "are very much in earnest in their inquiry [as] to what is to become of them when the dams are constructed." The report emphasized that the Indians would be "very materially and permanently damaged in their usual industries and will, in our opinion, require that some special provision shall be made for them of a permanent character." The commission noted that 23,240 acres of Indian land would be flooded at Lake Winnibigoshish and another 23,680 acres at Leech Lake.<sup>15</sup>

Soon after the report was turned over, the actual damage caused by two dams, which were completed in 1884, was tabulated. Chief Hi-gan-i-bi-ness wrote to Governor Lucius F. Hubbard that many fish were dying in the shallow water on the far side of the Leech Lake dam. Indian agent T.J. Sheehan of the White Earth Agency requested prompt action as "the damage arising to the rice fields, fisheries, hay-meadows, and cranberry marshes leave[s] these Indians in a pitiable condition, and with small means at their command whereby the necessities of life can be obtained."<sup>16</sup>



Timber dam at Leech Lake, 1884.

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In 1884 Congress appropriated the sum recommended by the commission to pay damages to the Pillagers. The commission had determined that property damages equaled \$10,038, and that the Indians should receive annual damages of \$26,800 for each year after 1883. By 1886 the award had not been paid, even though the government hoped to begin negotiating with the Chippewa for their removal onto two reservations. In addition to damaged rice and hay crops, the commission found that some of the burial grounds at Lake Winnibigoshish were so inundated by the overflow that the remains of the dead were unearthed and scattered. The commission recommended that the Indians be given \$150,000 with 5 percent interest per year to date, as well as \$1.25 per acre for all overflowed lands.<sup>17</sup>

On 19 August 1890, an appropriation of \$150,000 was made to pay the Chippewa in full for all damages caused by construction of the federal dams and reservoirs. Some of the acres subjected to overflow were ceded to the U.S. govern-

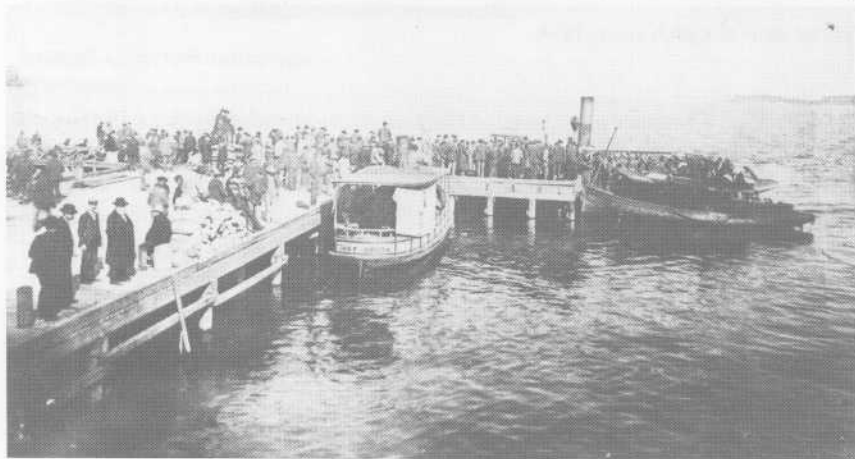


ment. All of the lands likely to be damaged by overflow would remain subject to the right of the Corps to construct and operate dams and reservoirs on them—and no further claims could be made. By this time, dams had also been constructed at Pine River and Pokegama Falls, although the new dams did not directly involve Indian property. The Pillagers continued to gather rice and hay and to fish in the lands subject to overflow; some years were good and others disastrous, depending on the weather and Corps operation of the dams. St. Paul Assistant Engineer Rufus Davenport reported that the effects of the reservoirs were “encouraging, if not phenomenal” in deepening the Mississippi during low-water stages.<sup>18</sup>

The Pillagers had been “paid off” in an amount far less than what they asked, and were left to hope for favorable rainfall and Corps actions. In 1905 Leech Lake Agent G.L. Scott reported that the unusually large amount of rainfall that year had made the reservoirs very full, thus submerging the lowlands adjacent to the lakes and rivers and destroying the wild rice crops. The hay meadows were also flooded, many trees died, and the graves of Indians buried near the lake were washed away. Worst of all, the Indians

seem to have no legal claim for damages, as they received a cash indemnity from the government covering all damages which might accrue from high water on account of the government dams. This does not ameliorate their condition in the least, as all the money was spent as soon as received by them, and it is difficult to convince them that the destruction of their food supply, property, and graves of their ancestors was paid for many years ago. Unless some great public good is subserved by holding back this water, in justice to the Indians, it should be discontinued.<sup>19</sup>

The dams and reservoirs were still maintained and operated; they were too beneficial to the urban interests along the Mississippi to be discontinued. Army



Troops from Fort Snelling preparing to embark for the “Battle of Sugar Point” on Leech Lake in 1889.

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Engineers reported that without the reservoirs at the headwaters of the Mississippi, steamboat transportation would hardly be possible between Brainerd and Grand Rapids during low water, and freight would have to be transported by wagon at high cost. Lumbering activities on the Indian lands were a particular problem. In 1898 approximately 25 logging camps operated in the Leech Lake area. In that same year troops from Fort Snelling were brought up to Leech Lake. The ensuing "Battle of Sugar Point" was the last fight between federal troops and the Indians in the 19th century.<sup>20</sup>

The reservoirs also greatly improved navigation at and below St. Paul. They eased floods and regulated the flow of water for power. Because the reservoirs affected many different and conflicting interests, St. Paul District Engineer Edward H. Schulz reported in 1907 that managing the reservoirs so that all would be happy was impossible. He stated that the reservoirs were being managed to benefit all interests except for the riparian owners on the reservoirs, "who have been, or are being, compensated in cash."<sup>21</sup>

The Pillagers continued to depend on rice, fish, and berries because the land was too poor to farm successfully. One agent claimed that "even a Finn or German would shrink from the task of making the land tillable." Although to do so seemed futile, a Leech Lake agent reported in 1916 that "the persistent operation of the upper Mississippi reservoirs at a high level by the War Department is ruining many hay meadows and wild rice fields." The situation was so bad in the mid-1920s that the Commissioner of Indian Affairs requested a per capita payment to the Chippewa Indians because of their extreme poverty and the loss of their rice and berry crops.<sup>22</sup>

The situation did not change until the 1930s, when many urban residents who built summer cottages around Lake Winnibigoshish complained about the fluctuating levels of the lake. Complaints were sent to Congressman William Pittenger describing the thousands of pike that were trapped in low water when the dam's gates were left wide open. Pittenger encouraged developing recreation, fishing, and other uses of the lake.<sup>23</sup> After the 26 locks and dams were built on the Mississippi below the Twin Cities, the need for release of water for navigation was no longer necessary, and District Engineer Wildurr Willing suggested that interests other than logging, water power, and navigation could govern the Corps' policies in maintaining water levels on the reservoir system.<sup>24</sup> Since that time, the reservoir system has actually helped the economic life of the Indians around Leech Lake. Due to stable water levels, they have been able to raise an excess of wild rice, and it has become a nationally marketed product of the headwaters region.

This episode in the history of the headwaters reservoirs provides a sharp contrast between the environmental time frames of two cultural traditions. The Native Americans looked upon the trees, meadows, water, deer, wild rice, and fish as a means of providing basic necessities of life for many generations. Lumbermen, engineers, millers, manufacturers, politicians, rivermen, and other newcomers to the north woods saw the short-term economic potential of this area.



Leech Lake and dam, 1970.

*St. Paul District*

An urban disposition dominated an agrarian way of life. The technological power of the industrialist extracted the rich natural resources and then retreated to new frontiers. The government engineers who assisted in the process were left to manage this technology for a new generation of urban residents interested in recreation. No one asked about the long-term effects of the reservoir system. The time frame for planning, execution, and desertion was less than one generation.

One factor, however, in this phase of environmental history stands out: All concerned knew of the short-term damages that would result among the Pillager Indians. Bishop Whipple's "straight tongue" was one that asked about human rights and justice. Indian leaders warned of the shortsightedness of the white man. Justice for the urban mindset centered on financial gain. Environmental damages and the disruption of established cultural traditions were compensated by mammon.

## II

### URBAN WATERS: FIGHTING REFUSE

Urbanization in the last half of the 19th century created a great demand for lumber. Every day thousands of houses and business establishments were being built. White pine, a light and strong wood, was ideal for building and was easily transported by water. Forests of white pine stretched across northern Wisconsin and Minnesota. The Black, Chippewa, Wisconsin, and St. Croix rivers tapped vast pine forests and emptied into the Mississippi, where lumber could be transported south to markets bordering the treeless prairies. Large-scale lumbering began in the upper Mississippi River valley during the 1850s. Loggers floated individual timbers to holding areas, where logs were joined together into rafts and shipped to sawmills.

After the Civil War the introduction of more efficient saws and methods of using water and steam power improved sawmill technology. In 1880, from St. Louis to the mouth of the Chippewa River, 75 sawmills manufactured lumber, shingles, and lathing. Together they had an annual day-sawing capacity of approximately 650 million board feet of wood. On the upper stretch of the Mississippi River and on the St. Croix, Black, Wisconsin, and Chippewa rivers approximately 200 additional sawmills operated. Lumbering had become the most important business on the upper Mississippi. The estimated total of white pine floated into the Mississippi River in 1880 was two billion feet.<sup>1</sup>

The Corps of Engineers' work on the upper Mississippi River aided the lumber industry from the 1870s until the early 1900s. Not only did lumber interests require river channels that would accommodate wide rafts and vast numbers of logs, but sawmills along the river dumped great amounts of sawdust and other mill refuse into the Mississippi. By the late 1870s, the amount of mill refuse dumped into the river, especially around Minneapolis where several large sawmills operated, had grown to such an extent that steamboat pilots, engineers responsible for improving river navigation, and boom companies found that the dumping was causing obstructions. In 1880 mill city sawmills produced an estimated 1.5 million board feet of sawdust.<sup>2</sup>

St. Paul, downriver from the sawmills in Minneapolis, was particularly troubled. The city's Chamber of Commerce contacted the U.S. Secretary of War



The Knapp, Stout & Company sawmill at Reads Landing, Wisconsin, in 1870. By the 1880s refuse dumped into the river from the many sawmills along the upper Mississippi had created a navigation hazard.

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in 1879 about the depositing of sawdust into the Mississippi River. Major Alexander Mackenzie, the Rock Island Engineer, was instructed to prepare a report for Congress. Although money was unavailable for a special survey, Mackenzie was able to use information gathered for Corps river improvement activities to report that many of the obstructions above Lake Pepin and as far south as Winona, Minnesota, were composed largely of sawdust. He wrote

that the promiscuous depositing of sawdust in the river is a public evil, and liable to injure navigation, has been acknowledged by all, who, from their connection with the river improvements, have had occasion to practically investigate the subject; and congressional and state legislation prohibiting deposit of sawdust or other refuse in the Mississippi River would seem very necessary.<sup>3</sup>

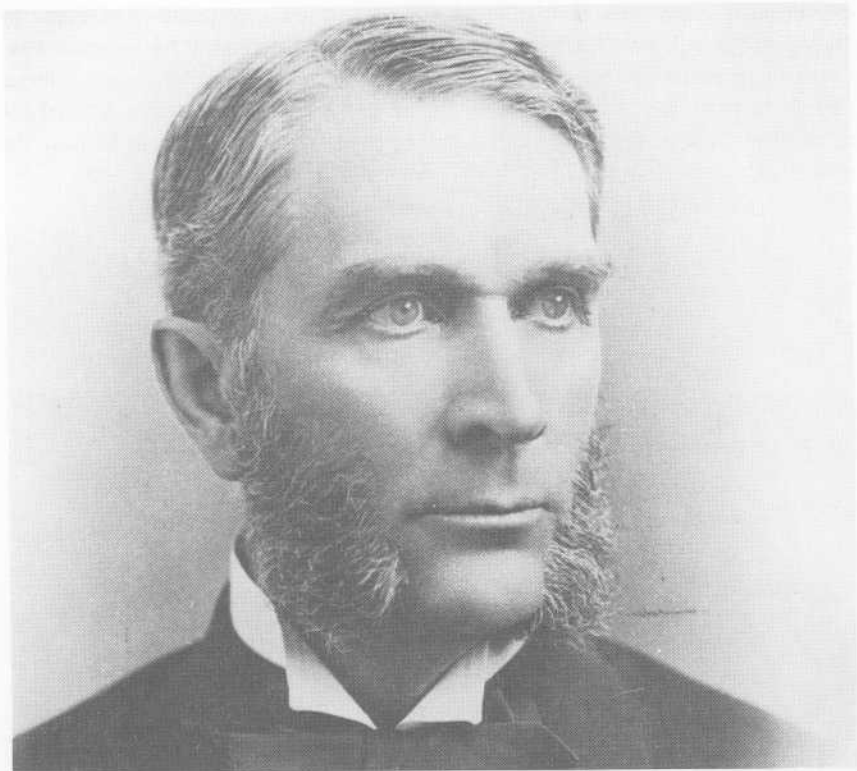
On 15 January 1880, Representative Mark Dunnell introduced a bill in Congress (H.R. 3535) "to protect and promote the navigability of the navigable rivers of the United States, and to prevent the deposit of sawdust or other material in said rivers to the injury of navigation, and to punish persons guilty of depositing such material therein." The Minnesota congressman's bill was referred to the committee on Commerce.<sup>4</sup> Here it was opposed by another Minnesota congressman, William Washburn, a leading Minneapolis manufacturer of lumber and flour, who was looking after his own interests.



**Brigadier General Alexander Mackenzie. Rock Island Engineer, 1879-1895. Chief of Engineers, 1904-1908.**

*Rock Island District*

In addition to attempts at legislation prohibiting the dumping of mill refuse into the Mississippi River, the Corps of Engineers, the Minnesota legislature, the Minnesota River Improvement Convention, the Mississippi River Commission, and hundreds of steamboat pilots endorsed a refuse act. St. Paul's Chamber of Commerce formed committees to investigate the sawdust problem, and looked to the Corps of Engineers for support. Major Allen, in charge of improvements on the upper Mississippi River, reported that the riverbed several miles south of Minneapolis was "paved with water-logged slabs and edgings, refuse from the mills at Minneapolis." Steamboat pilots had a difficult time detecting bars composed of sawdust and often found themselves stuck in the miller's muck. In addition, Allen explained that water permeated with sawdust retained resinous materials that caused foaming in steamboat boilers and chests. Major Farquhar, formerly at St. Paul, asked the Michigan legislature to address the problem there. Farquhar also encouraged the passage of a similar law in Minnesota.<sup>5</sup>



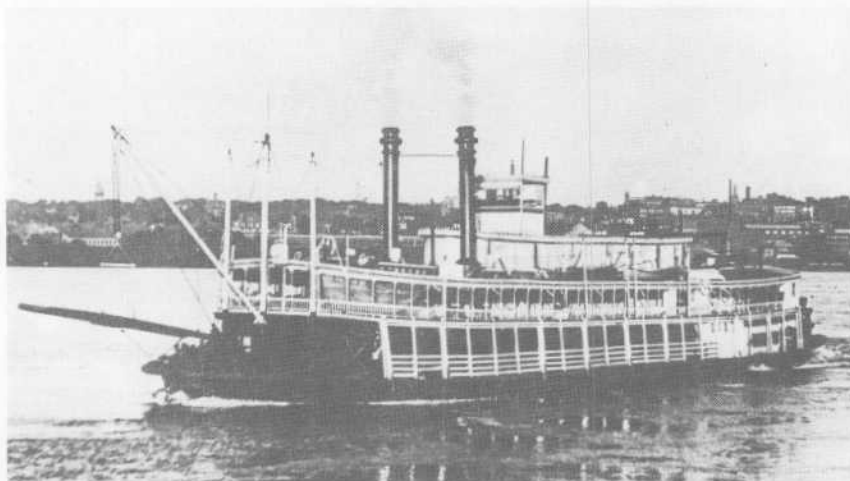
William D. Washburn. U.S. House of Representatives, 1879-1885. U.S. Senate, 1889-1895.

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Newspaper editors in St. Paul and Minneapolis held conflicting viewpoints. One editor claimed that an anti-obstruction bill proposed to Congress by the Corps of Engineers must not pass as "the rivers are and must forever be the common sewer and dumping ground for everybody."<sup>6</sup> Sawmen and lumber companies felt that they were guilty of no offense. They claimed that the amount of sawdust, edgings, slabs, and other mill refuse dumped annually into the river was nowhere near the 300,000 cords reported by the press. They stated that the mill refuse that was dumped into the Mississippi had no negative effect on navigation. In fact, after examining the bed and channel of the river from St. Anthony Falls above Minneapolis to Lake Pepin, some 70 miles south, they claimed that sawdust settled on the sides and banks of the river where it benefited navigation and formed no obstruction.<sup>7</sup>

With powerful lumber interests opposing the Corps of Engineers and others concerned about the sawdust problem, the controversy continued. Major Mackenzie, sensitive to the difficulties in dealing with various opposing interests,

explained in a letter to J.W. McClung of St. Paul, "Unintentionally and unknowingly persons will be influenced by self-interest, and it can not be expected that a perfect agreement on the question of sawdust can be reached." Because of these vested interests, he saw the necessity for a government department authorized to prevent obstructions or at least to remove those obstructions harmful to navigation.<sup>8</sup>



Sawmill refuse interfered increasingly with steamboat traffic on the upper Mississippi River. The damage done to boats by sawdust and debris prompted hundreds of steamboat pilots to support a law prohibiting such dumping.

*Minnesota Historical Society*

The Corps of Engineers was the appropriate federal agency for regulating this environmental abuse. O.C. Merriman, one of the most vocal members of the Minneapolis "sawdust lobby," attempted to enlist Corps support for his case. Merriman, who owned a large lumber mill, told the press that George L. Gillespie, an Engineer officer, later to become Chief of Engineers, thought that sawdust aided navigation. Gillespie said he was misquoted and joined a steamboat inspection tour of the Mississippi organized by the St. Paul Chamber of Commerce. The tour group found wood slabs, edgings, and sawdust bars, as well as a solid mass of mill refuse at the St. Paul booms. The most significant event of the trip occurred when a slab of wood lodged itself in the wheel of the steamer, causing \$75 damage.<sup>9</sup>

Gillespie's 1883 annual report again stressed the need for laws prohibiting the dumping of mill refuse into any navigable water because vast amounts of bark, edgings, and sawdust were still deposited in the Mississippi, "as a glance at the river during the sawing season will sufficiently prove." To document his position Gillespie described the Niringer Bar, which had formed in the steamboat channel, forcing the channel to the other side of the river and necessitating expensive Corps work to remove it. The bar was found to be composed of at least



50 percent mill refuse. Gillespie also emphasized in his report that sawmills were not the only offenders. In fact, the city of St. Paul, which had done so much complaining, for years had been dumping trash onto the ice along the river front, and the harbor was steadily filling up with it.<sup>10</sup>



Minneapolis, Minnesota, c. 1907.

*Minnesota Historical Society*

By the late 1880s Minneapolis was dumping approximately 500 tons of garbage into the Mississippi River below St. Anthony Falls each day, while St. Paul added an even greater amount. After the closing of the St. Paul garbage “crematorium,” the city had contracted with a local firm, The Sanitation Company, to remove all trash, garbage, street sweepings, and other refuse from the city limits. The Sanitation Company dumped this material off their barges into the Mississippi River. The practice continued until the river’s odor became so offensive that citizens of South St. Paul brought suit against the company. They obtained an injunction halting the dumping of garbage into the river or along its banks in the South St. Paul area. The Sanitation Company then announced that it would deposit all of St. Paul’s refuse at the lower end of Pig’s Eye Slough, just south of the city. In reality, however, the company often waited until dark and unloaded much of the material directly into the Mississippi River. Charles W. Durham, Assistant Engineer at Rock Island, reported to Major Mackenzie in 1888 that the city’s refuse had settled on the river bottom, obstructing navigation.<sup>11</sup>

The following year, Durham reported an increase in the quantity of city refuse dumped into the Mississippi. In a sweeping statement Durham claimed



St. Paul, Minnesota, c. 1907.

*Minnesota Historical Society*

that the refuse was not only a nuisance to navigation and to Corps work at the Twin Cities and several miles south, but that it was a menace to the health of area citizens and steamboatmen. He added, "it is not to be expected that the river can be permanently improved for navigation between Minneapolis and St. Paul as long as these deposits continue."<sup>12</sup>

In part due to the continual prodding of Corps engineers working on the upper Mississippi, the Rivers and Harbors Act of 1890 included a refuse act that, if strictly followed, could have ended the sawdust and garbage problem. The act forbade dumping that would impede or obstruct navigation. But it was interpreted by the Attorney General, who called the act "infelicitously, if not clumsily, drawn," to mean that government must prove that an obstruction resulted from each offense. Most navigable waters were large enough so that many dumpings were necessary before obstructing navigation. The act, therefore, was not enforced.<sup>13</sup>

Still troubled by the dumping of refuse into navigable rivers, the Corps began looking for a new law. The Rivers and Harbors Act of 1894 included some improvements, but loopholes prevented the act from being effective. Finally, Corps of Engineers Attorney George W. Koonce and his immediate superior Colonel Alexander Mackenzie, then assistant to the Chief of Engineers, prepared a bill for the Rivers and Harbors Commission that included the major anti-obstruction clauses desired by the Corps. Their bill, incorporated into the Rivers and Harbors Act of 1899, was the most broad and effective water pollution legislation in existence. Loopholes in the previous act were eliminated, and section 13, the Refuse Act, outlawed the casting of "any refuse matter of any kind or description" into navigable waters (except with the special permission of the Secretary of War).

The act also stipulated that refuse could not be dumped on the banks of tributaries of navigable waters if it was liable to be washed into the navigable water. Customs officials and Corps personnel were empowered to arrest violators.<sup>14</sup>

Despite Corps efforts to use the Refuse Act to eliminate waterway obstructions, the law had only a minor effect for many years. Little evidence exists that either the Corps of Engineers or the U.S. Customs Service sued offenders.<sup>15</sup> By the end of the 19th century the sawmills began to run out of material, and the refuse problem switched from sawdust to solid wastes. The Corps of Engineers decided to take a different approach to the problem.

In the Rivers and Harbors Act of 1890, Congress declared that the Secretary of War could establish harbor lines when the lines were deemed essential to the preservation and protection of harbors. These lines prevented the extending of piers, wharves, bulkheads, or other structures into the harbor and prohibited the depositing of material into the harbor. In 1901 St. Paul Mayor Robert A. Smith wrote to Secretary of War Elihu Root and requested the establishment of a fixed harbor line for the city. The St. Paul Corps of Engineers completed a survey of the proposed area and held a public hearing. The Rock Island District established harbor lines at St. Paul in 1902 along both sides of the Mississippi River and at Harriet and Raspberry islands.<sup>16</sup>

During the "sawdust controversy," the Corps of Engineers had a special interest of its own. They were charged by Congress to provide a clear channel for navigation, but refuse in the waters of the Mississippi obstructed their work. The city of St. Paul was also involved, because it was the terminal point of navigation on the upper Mississippi. Downriver from Minneapolis, St. Paul did not appreciate receiving the tons of bark, wood, sawdust, and other refuse dumped into the river. Little was said during the controversy about the overall environmental damage to water quality caused by the great urban growth of the Twin Cities. Although establishing harbor lines provided a limited solution, this action protected water depth only at the river terminals. The larger problem of river pollution was never faced. By 1905 the lumbering era came to an end, but the problem of solid urban wastes continued to plague the river throughout the 20th century despite adequate legislation in the Refuse Act of 1899.

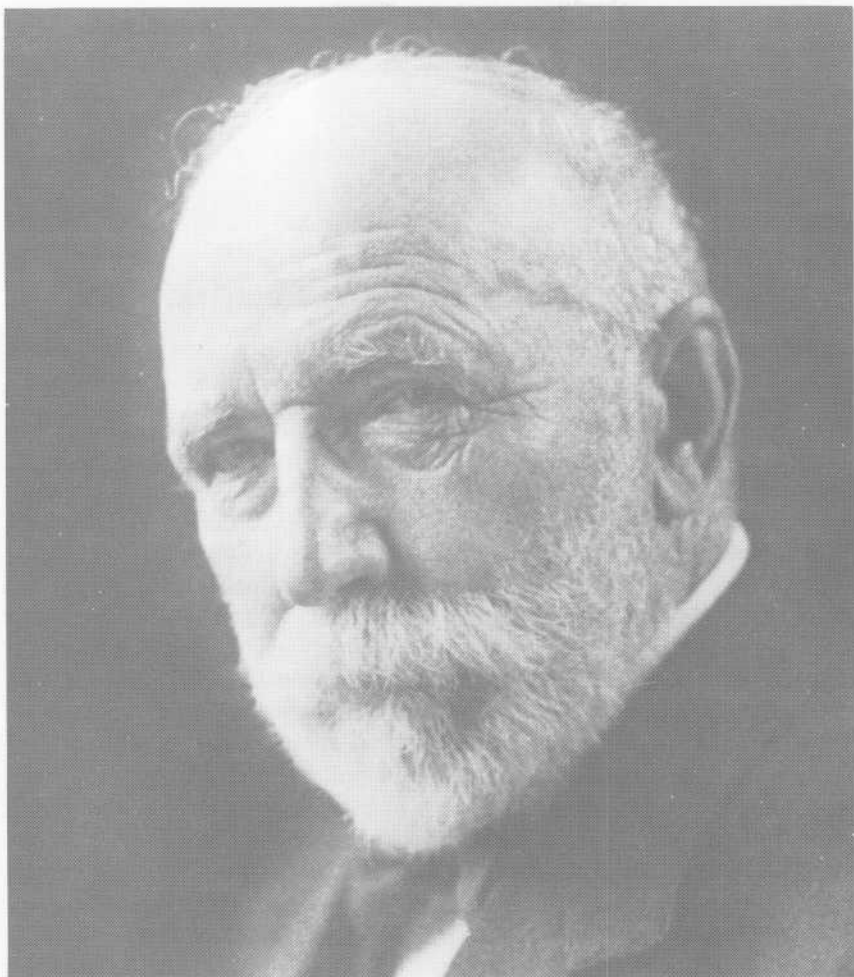
### III

## LOGGING WATERS: PROMOTING MONOPOLY

Aside from problems with headwater reservoirs and sawdust in urban waters, Corps and industry attention focused on the tributaries. Of all the towns supplying great amounts of pine to the dozens of sawmills along the Mississippi, the Chippewa River valley was the heaviest contributor. Frederick Weyerhaeuser, a sawmill operator in Rock Island, Illinois, began purchasing timber lands in the Chippewa valley in the 1860s to supply his mill with lumber and to increase his profits. However, the Chippewa River area lacked an adequate site where logs could be sorted and joined into rafts for delivery to Weyerhaeuser and other mill owners on the Mississippi. Hence, Weyerhaeuser diverted logs to the Beef Slough, a second channel of the Chippewa and a natural harbor for storing and sorting logs. Chippewa valley lumbermen and mill owners opposed exporting logs from Wisconsin to "foreign points" on the Mississippi, however, and the sorting and rafting operation at the Beef Slough was abandoned.<sup>1</sup>

The background for this decision involved numerous legal and not so legal agreements. The complex story of the Beef Slough has been told many times. In 1870 Weyerhaeuser and two Mississippi River lumbermen leased the bankrupt Beef Slough Company and obtained an Iowa charter for their new Mississippi River Logging Company. The company continued to face the wrath of local mill owners and lumbermen until 1880, when a number of compromises and consolidations were achieved. Weyerhaeuser, the power behind the new organization, became its president in 1872 and held that position for the lifetime of the company. The Mississippi River Logging Company soon represented three-fourths of the sawmill industries between Winona and St. Louis. It purchased more and more pine lands, conducted logging operations for its members, and stored and distributed logs from the Beef Slough sorting and rafting works. With his partner F.C.A. Denckmann, Weyerhaeuser continued to operate a Rock Island mill, which in 1886 employed 400 men and had a daily sawing capacity of 250,000 feet.<sup>2</sup>

While the company continued to prosper and grow, by 1889 an accumulation of sand at the head of the Beef Slough, as well as unusually low water in the Chippewa and Mississippi rivers, blocked the company's sorting operations. When efforts to improve the area (including assistance from the Corps of



**Frederick Weyerhaeuser.**

*Weyerhaeuser Co. Archive*

Engineers) failed, the company moved the entire sorting and rafting operation to West Newton Slough. The tract was a large backwater area on the west bank of the Mississippi about eight miles south of Beef Slough. Members of the Mississippi River Logging Company incorporated the Minnesota Boom Company under Minnesota law in 1889 to own and operate the works. The company began sending all of its logs from the Chippewa River across the Mississippi to West Newton Slough.<sup>3</sup>

This action revived the old protests of Wisconsin residents against the exporting of natural wealth. In addition, navigational interests voiced their opposition to the move, as vast numbers of logs now floated freely across the Mississippi

main channel. Previously, loose logs coming from the Chippewa River had been relatively small in number. Prior to 1889 a few logs escaped from the Chippewa, and they sometimes obstructed navigation. After 1889, however, the company drove between 350 million and 500 million feet of logs eight miles down the Mississippi River.<sup>4</sup>

The Rock Island Corps of Engineers informed the logging company that it could not block the main channel. The company explained to District Engineer Mackenzie that the West Newton Slough was essential to its business. Without it the company would have to suspend all operations, putting 10,000 men out of work in the various mills along the Mississippi. Mackenzie notified the Chief of Engineers that running loose logs on the Mississippi River below the Chippewa "has caused much inconvenience, damage, danger, and delay to steamboat navigation."<sup>5</sup> He also noted the company's opposite view that navigation was not a serious consideration. However, steamboats reported long delays not only during log runs, but between them as well when a sufficient number of logs flowed in the river to make navigation hazardous.<sup>6</sup>

Yet the company ignored all complaints and continued to run vast numbers of loose logs down the Mississippi to West Newton, claiming that they had the right to do so based on the provisions of an act passed on 6 June 1880. This act authorized the Mississippi River Logging Company to construct and operate booms on the Mississippi at or above the head of Rollingsstone Slough and below the mouth of the Chippewa, but only after the Secretary of War certified that the booms would not impede navigation. The law was intended to give the company a way to gather loose logs that escaped from the Beef Slough into the Mississippi. But Mackenzie informed the Chief of Engineers that the company's booms did obstruct navigation and therefore did not have the Secretary of War's approval. The booms sometimes closed the entire channel and always used a part of it, and loose logs "seriously interfere with the safe and easy navigation which the government is extending large sums of money to establish."<sup>7</sup> The logging company, with \$5 million in annual business, was ready to assume the monetary consequences of any damages it might cause. It had become the most important financial power on the upper Mississippi.<sup>8</sup>

The controversy was further complicated when, in August of 1889, Major Mackenzie reported to the Chief of Engineers that certain government dams had been damaged. He recommended that the Department of Justice investigate the violations under section 3 of the Rivers and Harbors Act of 1876. This law provided that "Any person who shall willfully and unlawfully injure any pier, breakwater, or other work of the United States for the improvement of rivers or harbors or navigation in the United States shall, on conviction thereof, be punished by a fine not exceeding one thousand dollars."<sup>9</sup>

Attorney General W.H.H. Miller asked A.R. Bushnell, U.S. Attorney for the Western District of Wisconsin, to conduct the investigation and prosecute any offenders. Bushnell brought witnesses, whose names had been supplied to him by Major Mackenzie and his superintendent, William Thompson, before a







**Log jam at St. Croix Dalles in 1870. Loose logs endangered navigation on Wisconsin and Minnesota rivers throughout the logging era. Log jams on the smaller tributaries became an annual occurrence during the spring floods.**

*Minnesota Historical Society*

grand jury at La Crosse, Wisconsin, in September 1889. The trial revealed that a Minnesota Boom Company foreman had blown up a government dam at the head of the West Newton Slough to ease the movement of logs into the raft works. He had acted without sanction or knowledge of his superiors. A few other dams had been damaged by the running of loose logs over them, but not through any deliberate intent.<sup>10</sup>

The offense committed by the foreman, however, occurred on the Minnesota side of the Mississippi River, and the case was thrown out because the jury had no jurisdiction over that area. U.S. Attorney Bushnell informed the Attorney General that, in his opinion, acting against the logging company under the Rivers and Harbors Act of 1876 would not be wise, because a fine under the law could not exceed \$1,000. "The logging company would pay numbers of such fines and these injuries still be continued."<sup>11</sup> He also believed that requiring the company to replace the dam would be insufficient punishment. The approximate \$2,000 cost of replacing the dam would be a minimal sum for the company to pay. Bushnell suggested that the solution would be to file a bill of equity preventing the company from any further driving of logs in the Mississippi. He wrote, "If these dams are to be protected, and the navigation of the Mississippi River kept unobstructed, such a suit in equity should be brought."<sup>12</sup>



For Bushnell the real issue was the company's unlawful use of booms and loose logs in the Mississippi.

Upon receiving Bushnell's report, Attorney General Miller notified Secretary of War Redfield Proctor that the only course open was the filing of a bill of equity to stop the company's unlawful use of the river. Proctor requested a report from the District Engineer, and stated that if the report confirmed Bushnell's opinions, "I should then deem it advisable to take proper legal steps looking to the correction of the whole abuse."<sup>13</sup>

At this point, a court injunction possibly would have improved river navigation below the Chippewa and above West Newton Slough by curtailing the Mississippi River Logging Company's driving of loose logs in that area. Major Mackenzie's opinion, however, changed all that. Mackenzie, whose office was in the same town as Weyerhaeuser's headquarters, blocked an injunction against the company. Despite the obstructions that the logs caused to navigation and to government projects, Mackenzie reported to the Attorney General and to the Secretary of War that he had no intention of combining the case of the blown-out dam with the rights of various classes of commerce on the upper Mississippi. He said that although the logging company's practices "caused delay and annoyance to other classes of navigation," conflicting navigational interests should settle their own problems without government involvement.<sup>14</sup>

Mackenzie felt that the company's destruction of the government dam should be punished under the Rivers and Harbors Act of 1876, but that the West Newton Slough case was not a sufficient cause to keep the Mississippi River Logging Company from moving loose logs in the upper Mississippi River. Mackenzie believed the company had already been chastised by having to appear in court, and that it would not want to antagonize the government further by repeating the offense. Furthermore, he had received a letter from Weyerhaeuser and his secretary, Thomas Irvine, in which they agreed to repair the dam if called on to do so, and they promised that no further damage would be permitted. Mackenzie did not want the Corps to become a regulatory agency. He felt that conflicts between businessmen over the use of the Mississippi should be settled privately or through litigation between the involved parties. In spite of Mackenzie's policy, the new Rivers and Harbors Act of 1890 gave the War Department the power to investigate and punish the Mississippi River Logging Company if its works harmed navigation.<sup>15</sup>

During this period of litigation Weyerhaeuser sought congressional sanction of his company's log drives. In 1891 Representative Washburn of Minnesota introduced a bill in Congress that would have allowed the transport of loose logs on the Mississippi and the right to operate booms and other structures in the West Newton Slough and elsewhere. The bill passed the Senate, but a similar House bill was stopped, largely due to opposition from the Wisconsin legislature.<sup>16</sup> Undaunted, Weyerhaeuser's company continued to drive logs across the Mississippi under the provisions of the 1880 law. Although the company blatantly violated even that law, by 1892 no further federal action had been taken against the



Logs were collected at boom sites to be arranged into huge rafts for further transport. This is the St. Croix boom in 1886.

*Minnesota Historical Society*

Mississippi River Logging Company. In March of that year U.S. Attorney Bushnell introduced a resolution to Congress (in accordance with one adopted by the Wisconsin legislature) requesting information from the Attorney General and the Secretary of War concerning the destruction of government dams and obstructions to navigation between the mouth of the Chippewa and the West Newton Slough. The resolution called for proper action to stop these obstructions to navigation. The resolution passed, and the Chief of Engineers referred it to Major Mackenzie for investigation.<sup>17</sup>

Mackenzie's report supported his previous policy. He noted that obstruction to navigation "will continue so long as the habit of running loose logs in the river is followed." He reported that the clogged river conditions had brought different classes of commerce on the Mississippi into conflict. His major concern, however, was that sawmills depended on the Mississippi River Logging Company for their log supplies, and any interference with the company's operations would destroy a large part of Mississippi River commerce. Mackenzie repeated his belief that the question of the rights of different classes of commerce should be settled in the courts by the parties whose interests were affected, rather than by the government.<sup>18</sup>

The Rock Island Engineer was unwilling to recommend action that would prejudice the rights of any class of commerce. He advised that the case not be dropped entirely but held in abeyance in case the company violated its promises to leave government dams alone.<sup>19</sup>

The Attorney General and the Secretary of War accepted Mackenzie's report and decided not to bring the issue to the attention of another grand jury. When the Corps' reluctance to regulate logging practices became obvious, steamboat pilots and others filed suits against the Mississippi River Logging Company for damages caused by their loose logs and booms, and payments were made where damage was demonstrated. Yet many were angered by the accommodating attitude of the government and its lack of tough-minded action against the company's unlawful use of logs and booms on the Mississippi.<sup>20</sup>

As assistant to the Chief of Engineers, Mackenzie helped frame the Rivers and Harbors Act of 1899, which forbade the floating of loose logs or rafts that obstructed or impeded navigation in rivers navigated by steamboats. The Weyerhaeuser interests lobbied in Congress against this legislation. The bill, as finally approved, exempted any river where logging was the major form of navigation. It gave the Secretary of War authority to make regulations where different navigational interests were in conflict. Thus, the Mississippi River Logging Company was able to continue to drive its timbers on the river until the northern pineries were exhausted. In 1905 West Newton Slough was used for the last time. During that same year Mackenzie was promoted to Chief of Engineers.

The story of the Weyerhaeuser logging combination was one example of the power of large industrial organizations in the last half of the 19th century. This system was so extensive that its welfare determined the daily lives of every town and city on the upper Mississippi River. Curtailing its operations meant



After being gathered into rafts, the logs were pushed downriver to the sawmills by raft boats. This tow of logs was photographed at Wabasha, Minnesota, about 1910.

*Minnesota Historical Society*

that financial growth would be affected in all parts of the upper Midwest. Although a great portion of Wisconsin was concerned about the long-range effect of this syndicate on the environment of the Chippewa, Black, and St. Croix watersheds, the District Engineer's policy at Rock Island was to support the lumber monopoly in spite of loose logs in the main channel, illegal booms, and the tampering with government dams. Damages were to be paid to those abused. Mammon ruled on the tributaries, just as it had in the headwaters region.

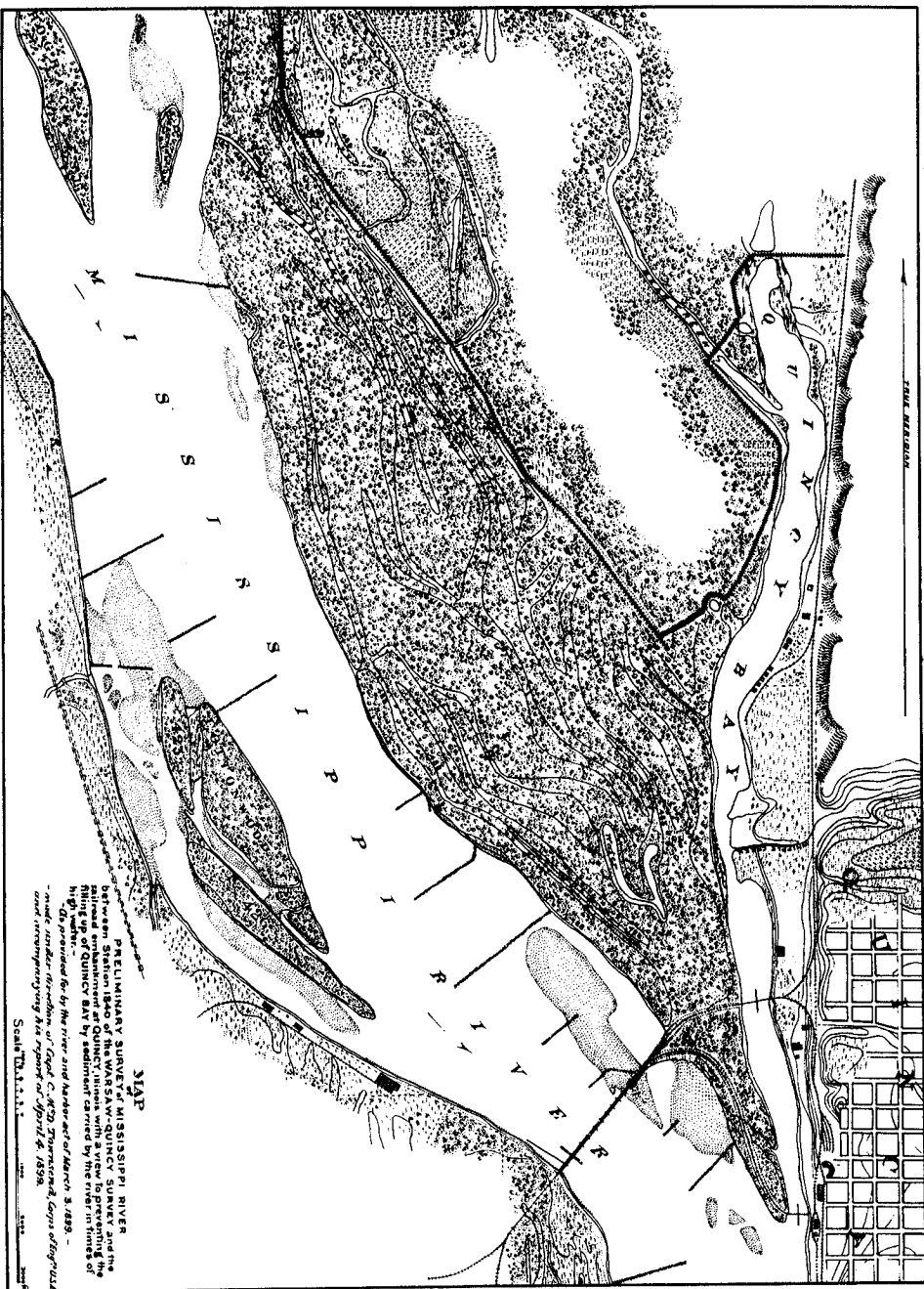
## IV

### POLLUTED WATERS: ASSISTING COMMERCE

In the spring of 1882, Mark Twain began his famous trip up the Mississippi River. During his journey from St. Louis to Minneapolis he was amazed at the “bristling great towns,” the largest of which were Quincy, Keokuk, Muscatine, Winona, Moline, Rock Island, La Crosse, Burlington, Dubuque, and Davenport—all of which had manufacturing foundations in the lumbering business. Twain described these cities as “all comely, all well built, clean, orderly, pleasant to the eye and cheering to the spirit.”<sup>1</sup> Never, even with his critical eye, did he say a discouraging word about the smelly, dingy, heavily polluted backwaters that plagued these communities ten years later.

Because of the vast urban growth of the two prior decades, practically all of the upper Mississippi River towns faced an unhealthful waterfront by the 1890s. Quincy, Illinois, was one of the cities Twain praised in 1882 as “wholesome” with “broad, clean streets, trim, neat dwellings and lawns, fine mansions, stately blocks of commercial buildings . . . ample fairgrounds, a well-kept park, and many attractive drives; library, reading rooms, a couple of colleges, some handsome and costly churches, and a grand courthouse, with grounds which occupy a square.”<sup>2</sup> When Twain visited the city of 30,000, it was because of a manufacturing center. The growth of sawmills, ice houses, railroad yards, and numerous factories helped to make this an important harbor on the Mississippi. After the Civil War, when Quincy was prospering, a fine current flowed through Quincy Bay during low-water stages. By 1890 the current ceased to flow when the water in the bay dropped to less than a five-foot depth. The problem was caused by physical “improvements.” Cutoffs enabled Willow Slough to fill with sand, and the levees constructed by the Corps of Engineers reduced the current in the harbor. As a result the waterfront became stagnant and unnavigable during low water.<sup>3</sup>

The city of Quincy wanted the government to reopen Willow Slough or some other channel between the Mississippi and Quincy so that sewage and other deposits could be carried off in the continuous current that would be produced. In 1888 Quincy petitioned Congress for funds to improve and maintain Quincy Bay. City Engineer E.R. Chatten wrote to the mayor and city council of Quincy



Quincy Bay and harbor, Quincy, Illinois. The harbor, once cleansed by currents from small tributaries, became stagnant after the cutoff of Willow Slough and the construction of levees.

suggesting that a careful examination of the bay be undertaken. He proposed use of the harbor as a sewage outlet rather than looking for other methods of disposal. The Rivers and Harbors Act of 1890 authorized an examination of Quincy Bay and of the proposal to open a channel between the Mississippi and Quincy.<sup>4</sup>

Many citizens of Quincy wanted the government to reopen one of these channels, but Major E.H. Ruffner's study concluded that this would not be wise. The expense of creating a channel that would permit navigation and allow the passage of enough water in the bay to move the accumulating deposits could not be justified by the "interests of commerce." In addition, Ruffner reported that reopening Willow Slough or any other minor slough or channel would be against the river improvement practice of closing small channels to concentrate the passage of the river in the main low-water river channel. Instead, Ruffner recommended the continued dredging in the bay.<sup>5</sup>

Two months later at a public meeting in Quincy, residents complained about the effects of the closed channels and levees. Most discussion centered on the need to bring more commerce to Quincy. The question of the city's health was largely ignored. One resident remarked, "the sanitary condition of the water is of minor importance to a growing city." Some, however, noted that stagnant water in the harbor was endangering the lives of river and ice men who worked there. Thirty-nine Quincy residents petitioned the Board of Engineers for a channel sufficiently deep and wide to admit steamboats at all river stages and capable of supplying a current to carry accumulations out into the bay.<sup>6</sup>

The Corps refused to reopen the Willow Slough channel. The Rivers and Harbors acts of 1890, 1894, and 1896 appropriated \$65,000 for dredging and improving Quincy Bay for navigational purposes. The city of Quincy also asked for and received a harbor line at Quincy Bay in 1890 to halt factories in the bay from dumping refuse. The bay was diminishing in depth and area, and Board of Engineers officers hoped to reduce the accumulation of deposits from local sources by establishing protected harbor boundaries.<sup>7</sup>

Clearly, 30 years of intense Corps activity in building closing dams, wing dams, and other structures necessary to provide a clear channel for commerce had a dilatory effect on the health of upper Mississippi River towns. Even a small village such as De Soto, Wisconsin, was plagued with a polluted river front. Because of its location on a backwater channel of the Mississippi about 30 miles south of La Crosse, the commercial interests of this harbor were deemed unworthy of the expense of dredging the large bar that reached from the shoreline to the river channel. Corps construction in the area slowed the current during low-water levels. Further difficulties arose when a new Corps dam prevented the river current from carrying away stagnant water even during normal river stages. Ten years later, and after many petitions for help from town officials, the new dam was demolished.<sup>8</sup>

Corps policy regarding harbor pollution varied according to the size and importance of the locality affected. By 1880, the most important distribution port on the upper Mississippi between St. Louis and St. Paul was La Crosse, Wisconsin.



**Willow Slough is clearly visible on this 1890 map of the Mississippi River at Quincy made to accompany the government report evaluating the reopening of the channel.**





**This map of the Mississippi River from St. Paul to Pig's Eye Island illustrates the kinds of work the Corps did to maintain a commercial channel. Such improvements, however, caused the water along the shore to become stagnant and polluted.**

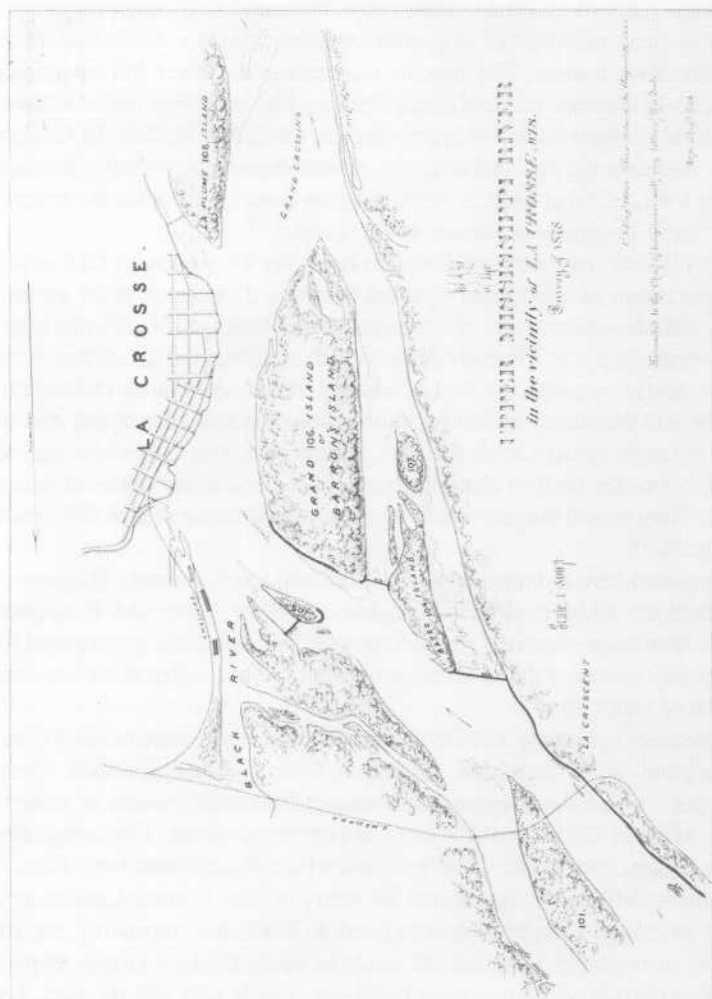
sin. In 1890, La Crosse was the second largest city in Wisconsin and one of the nation's largest lumber centers. In that year, the city's sawmills manufactured 239 million feet of lumber, 54 million laths, and 121 million shingles.<sup>9</sup> By 1896, more steamboats were owned and controlled by La Crosse businessmen than at any other port on the Mississippi. It was an important enough harbor for the Corps of Engineers to maintain a full-time office there. William A. Thompson became the Corps engineer at La Crosse.

La Crosse was strategically located at the mouth of the Black and La Crosse rivers on the eastern banks of the Mississippi. During the Civil War the La Crosse and Milwaukee Railroad was the primary carrier of grain from the Mississippi to eastern ports. After the war, the Chicago, Milwaukee, and St. Paul Railroad passed over the Mississippi at La Crosse, carrying supplies to settlers in Minnesota, Iowa, and other trans-Mississippi points and bringing back quantities of grain to be milled or distributed in La Crosse, Milwaukee, and other grain centers.<sup>10</sup> The harbor grew to accommodate this booming river traffic and by the 1880s possessed an extensive boatyard. It thus became a railroad as well as a steamboat terminal. Hemlock supplies in the Black River valley gave rise to an important tanning industry in La Crosse, and foundries and machine shops were established to provide steamboat repairs and sawmill machinery. The city also developed breweries, cigar factories, and related industries.<sup>11</sup>

Until the 1880s, the heavily used harbor had extended 2,400 feet along the city's river front, and the eastern side of the Black River provided additional landing space. However, due to Corps improvements in the Mississippi channel, the harbor was gradually diminishing in length and becoming more difficult to navigate. Instead of joining the Black River and forming a current swift enough to carry away debris entering from the La Crosse River, the Mississippi channel now struck the eastern shore to the south of the Black and La Crosse rivers. The current of the Black River was insufficient to carry away the sand and mud deposits from the La Crosse River. By the early 1890s, a mud- and sandbar had grown so large that during low-water stages boats were unable to land in the Black River or in much of the La Crosse harbor. In addition, sewage dumped in the river at La Crosse was gradually accumulating in the harbor because of the changing river channel, creating offensive odors and unsightly and unhealthy conditions on the waterfront.<sup>12</sup>

The Corps had changed the channel of the La Crosse River in 1884. This alteration accelerated the buildup of deposits in the harbor. In addition, a bridge built across the Mississippi at Mt. Vernon Street had shortened the wharf. An eddy near the bridge made the departure of boats dangerous. Railroad tracks along the levee decreased the space available for handling freight. Docking of steamboats below the Mt. Vernon Street bridge became impossible because sawmills and other manufacturers occupied so much of the shoreline.<sup>13</sup>

The La Crosse harbor clearly needed improvement; the encroaching mud, sand, and sewer deposits had become obstructive and at times even dangerous to navigation. The Rivers and Harbors Act of 1894 authorized the Corps of



The channel improvements on the Mississippi in the late 1870s also altered the condition of the harbor at La Crosse, Wisconsin. After the change in the channel, debris from the La Crosse River, shown at top center of the map, was no longer carried away by the current of the large rivers but settled in the stagnant harbor.

National Archives

Engineers to conduct a preliminary examination of the harbor. Major Mackenzie carried out this survey. Emphasizing the city's importance as a manufacturing and shipping center, he recommended that La Crosse receive government assistance. He also suggested a more extensive study of the harbor to determine all the factors involved in maintaining a navigable shipping terminal.<sup>14</sup>

La Crosse's Board of Trade, whose objectives included the promotion of business and the encouragement of new manufacturing, was also concerned about the state of the city's harbor. The board's Committee on River Improvements supplied Wisconsin Representative Michael Griffin with "oratorical and documentary ammunition" to gain funds for improving the La Crosse harbor. In January 1895 Griffin introduced a resolution to the House requesting an appropriation for improving the La Crosse harbor. Authorization came in the 1896 Rivers and Harbors Act for a government survey of the harbor.<sup>15</sup>

The survey was conducted by Assistant Engineer Thompson of La Crosse, under the supervision of Lieutenant Colonel William R. King of Rock Island. The two proposed the construction of a brush and rock bulkhead, 1,575 feet long, stretching from the center of Main Street upriver to a point about 1,000 feet from the shore and nearly opposite the foot of Badger Street. A smaller cross dam, approximately 400 feet long, would be built shoreward from the upper end of the bulkhead to catch deposits from the La Crosse River. The Corps also agreed to dredge the bar to the west of the bulkhead and to deposit the material inside the bulkhead. They hoped the city would eventually fill in the rest of this space for use as a park.<sup>16</sup>

The proposed harbor improvements would add approximately 800 feet of docking space to the 500 feet already available. However, King and Thompson recommended that no government expenditures be made until the city moved its sewers to a point outside of the government works to ensure that the river current would carry away sewage.

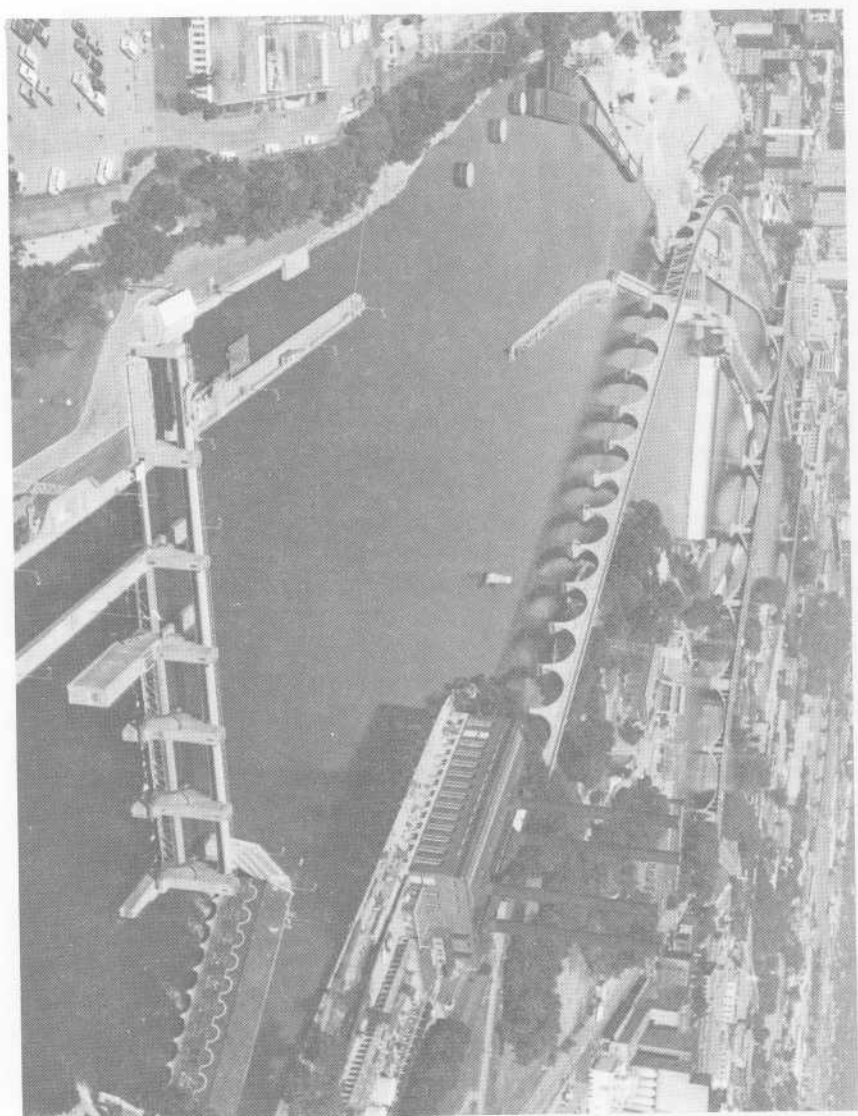
Delegates sent in January 1897 to the Washington River Improvement Convention made good use of their time calling on Wisconsin congressmen. They were assured that "a liberal appropriation to complete the work" would be passed. Congressman Michael Griffin was the most important advocate. The delegation met with Mackenzie, then in the Chief's office, who also endorsed their plan.<sup>17</sup> Chief of Engineers William Craighill and Secretary of War Daniels Lamont also approved the proposal. Congress appropriated \$12,000 for improving the La Crosse harbor, providing that no federal funds be spent until La Crosse moved its sewer system outside of the proposed bulkhead. The Rivers and Harbors Act of 1896 had included an appropriation of \$5,000 for the La Crosse harbor. Consequently, \$17,000 was available to carry out the project.<sup>18</sup>

A new policy was thus initiated. Local officials were responsible for local pollution. Such problems must be solved with local funds before federal improvements could be made. Nothing was said about pollution of the main channel or of downriver municipalities. La Crosse Mayor James McCord told Board of Trade members at an 1897 banquet that the city's sewer system was no longer

adequate. The anticipated extension would carry sewage from the business section to a point south of the intake pipe of the water works. Stating that "care for the health of the city seems to make this a necessity," McCord noted that any government harbor work depended on the city's efforts to improve its sewage system.<sup>19</sup>

River commerce and access were essential to La Crosse manufacturers, and the city agreed to make the required sewer changes. Because of a delay while the city sought the funds, no federal work was done in 1898 or 1899. La Crosse Mayor Wendell Anderson contacted the Rock Island Corps office on 15 November 1899, and requested that the Secretary of War be notified that "conditions precedent to the expenditure of appropriations for completing the harbor work at La Crosse have been complied with." Harbor work began in 1900. The La Crosse Board of Trade expressed their appreciation to Assistant Engineer Thompson for conserving their river front, and lauded the members of the La Crosse Common Council as "men of civic patriotism and progress" for authorizing the necessary sewer changes.<sup>20</sup>

Corps river policy in the 19th century concentrated on navigation and a clear channel for steamboats. Snagging trees, removing obstructions, closing secondary channels, and building hundreds of wing dams greatly aided commerce. The growth of commerce resulted in rapidly expanding urban communities. As these new cities developed manufacturing facilities, more refuse was dumped into municipal harbors. By the 1890s the growth of population and industry overburdened the capacity of the Mississippi to carry away urban wastes. Ironically, Corps improvements for commerce were partially responsible for the rapid growth of river towns. Lumbering and other industries, along with the rise in population, caused a health problem on the upper Mississippi River. If a locality had little commercial value, such as De Soto, the Corps ignored the problem. In the case of Quincy, the Corps was willing to dredge the terminal and establish harbor lines to curb industrial pollution. An important city such as La Crosse, which could mount political pressure in Congress and in the Chief of Engineers' office, did obtain federal assistance. However, by the turn of the century, the federal government had begun to establish a policy that urban wastes were the responsibility of those municipalities that were dumping refuse into the Mississippi. The policy for sewage removal became: put it in the main channel. Mark Twain, who complained during his 1882 trip about "unholy" railroad trains "ripping the sacred solitude to rags and tatters" and ruining the 800-mile shoreline along the placid river, would certainly have had a critical comment about the deposit of human and industrial wastes into water that he had compared to a woman with a clear and fine complexion.<sup>21</sup> By the end of the 19th century the river was more important as a sewage conduit than it was as a navigational channel. The picturesque towns Twain observed had grown into industrial cities.



The upper and lower locks of the Falls of St. Anthony, 1976.

*St. Paul District*